

# The UK Hydrogen Innovation Opportunity

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Our **mission** is to accelerate critical technologies and supply chains in the UK for the fast-growing global hydrogen economy.

HII is working with >200 companies and 10 sector bodies in the UK, to coordinate innovation in 9 critical technology areas across:



Hydrogen Production



Hydrogen Distribution



Hydrogen Use

HII is working with industry to drive innovation and supply chain development, working across UK industry and with support from our Industrial Advisory Board:

bp, Airbus, Cummins, GKN Aerospace, Glass Futures, H2Go, Hydrogen Energy Association, Hydrogen UK, Johnson Matthey, National Gas, ZeroAvia

HII is generating **technology roadmaps**, forecasting **sector demand** and **markets**, and mapping **UK capability**.

## HII partners:



Supported by  
Innovate UK



# Our partners are supporting industry to accelerate the hydrogen economy....



# Unlocking the benefits Anchoring the value



# The global hydrogen economy

## Direct and indirect economic activity

**\$8 trillion**

3 x benefits: Decarbonisation – Economic – Influence

When both direct and indirect economic benefits are considered, the global hydrogen economy has the potential to be worth \$8 trillion by 2050.

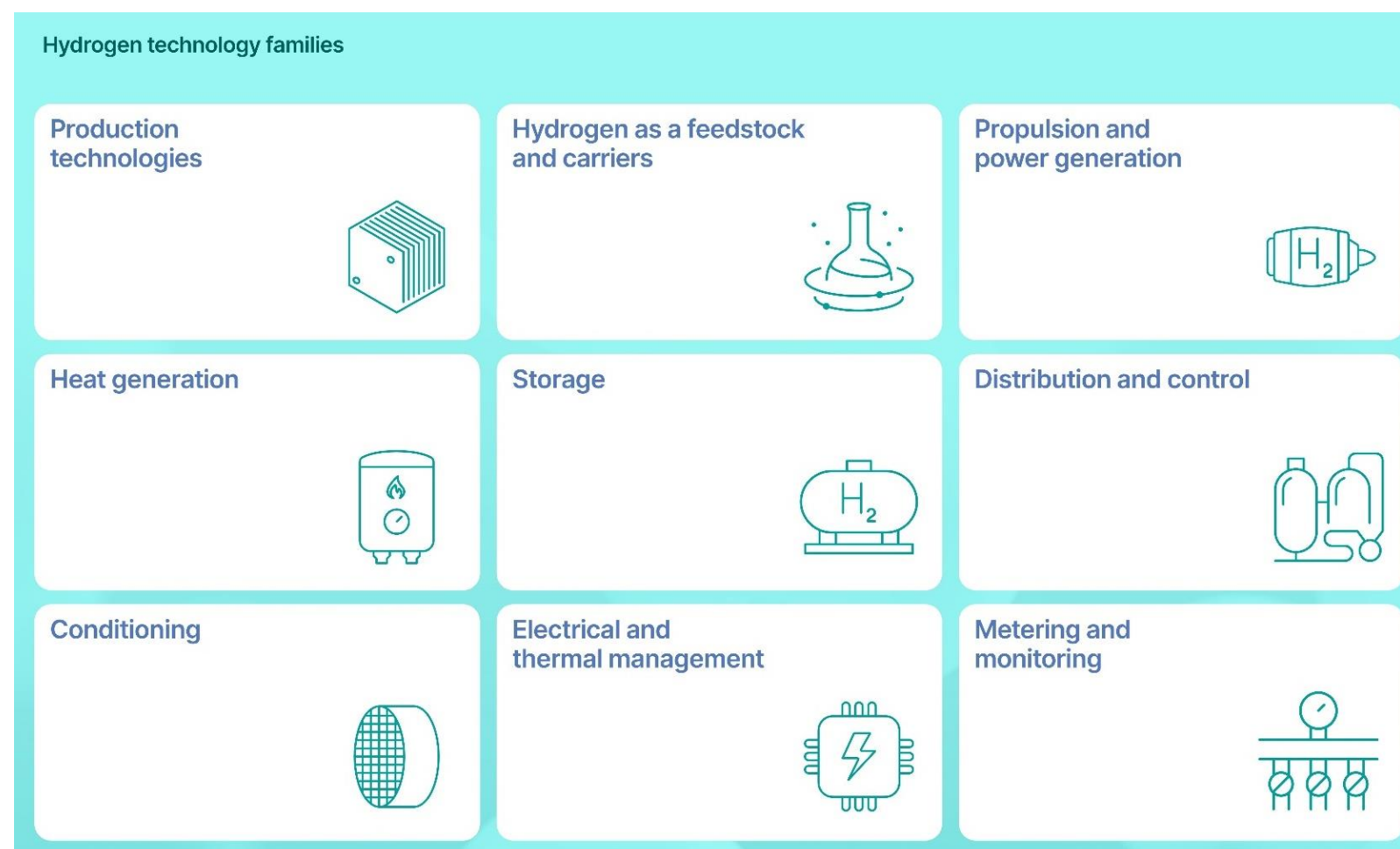


# Hydrogen technology market

# \$ 1 trillion

## 9 cross-cutting hydrogen technology families

Target a 10% market share of the global market



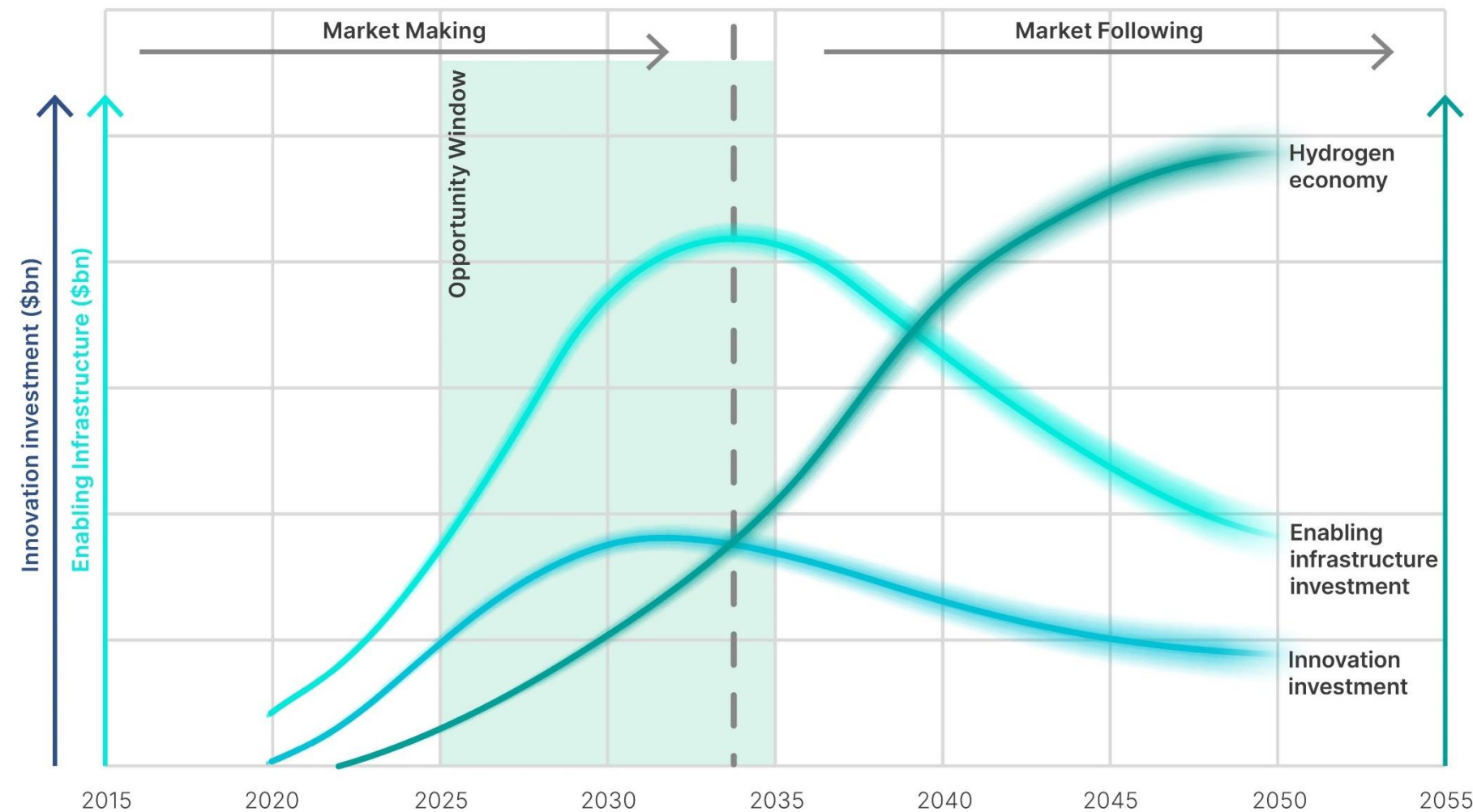
The UK is starting from a strong base of industrial capability with an established innovation ecosystem. Under the right conditions and with the right strategic investments, this can be catalysed for growth.

# Window of opportunity

To secure a market leading position

Capturing the expected peaks for innovation and infrastructure investment, along with highest growth phase of the global hydrogen economy

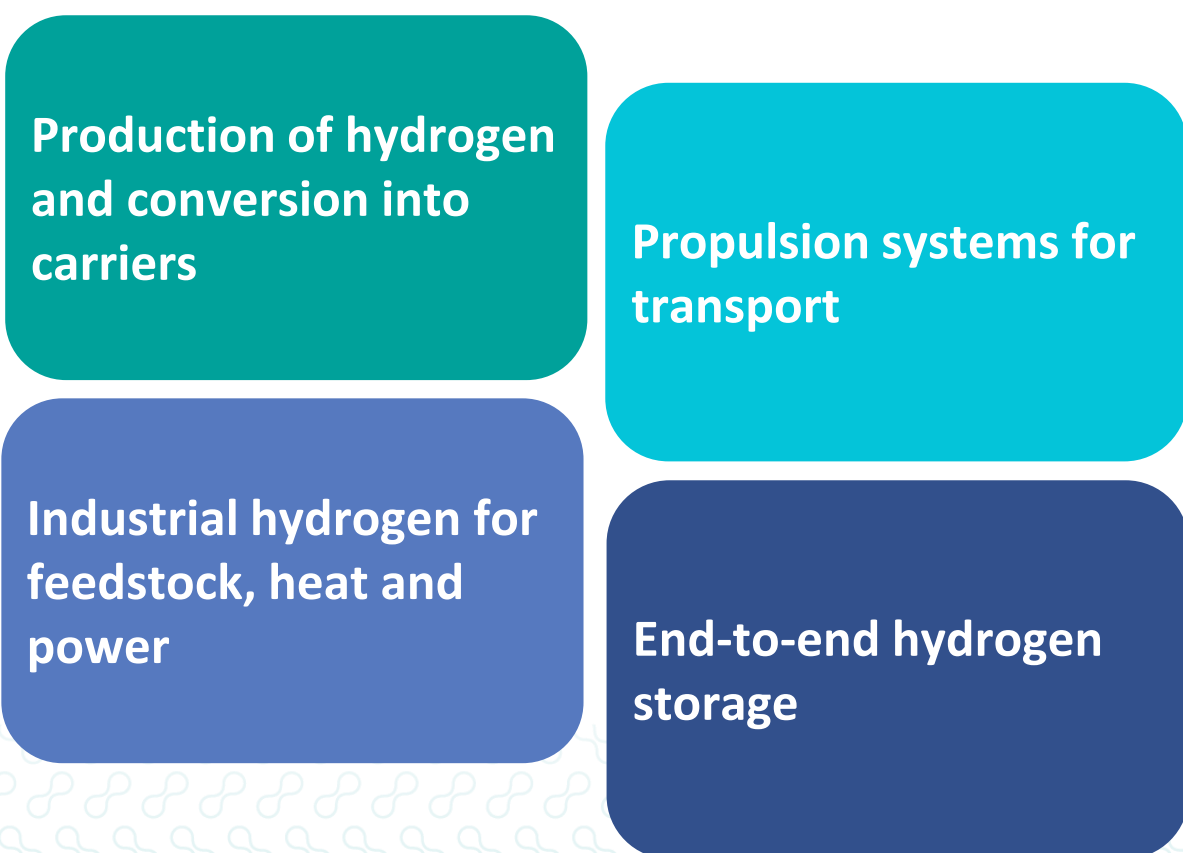
# 10 years



If the UK is to stay ahead of international competition a strategic approach to investment in hydrogen innovation must be developed and delivered at pace.

# Strategic intervention

Representing biggest potential for the UK



**4** focus areas

Innovation creating a space for us to become truly world leading...

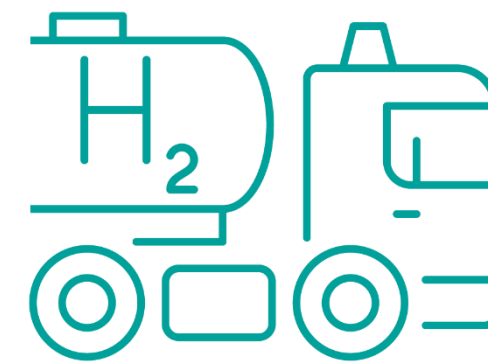


# The UK Hydrogen Innovation Opportunity in figures



**\$8 trillion**

The global hydrogen economy in 2050,  
considering direct and indirect economic activity

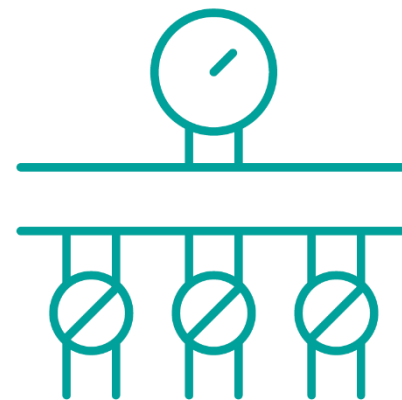


**4 areas of focus**

Representing the biggest areas of potential for  
the UK

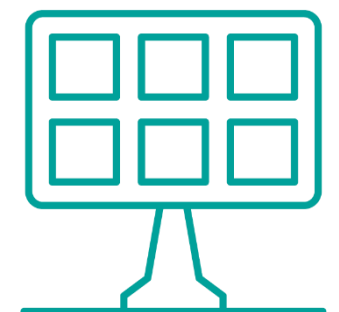
**\$1 trillion**

Global hydrogen technology market by 2050  
Delivered by 9 cross-cutting technology families



**10 year window**

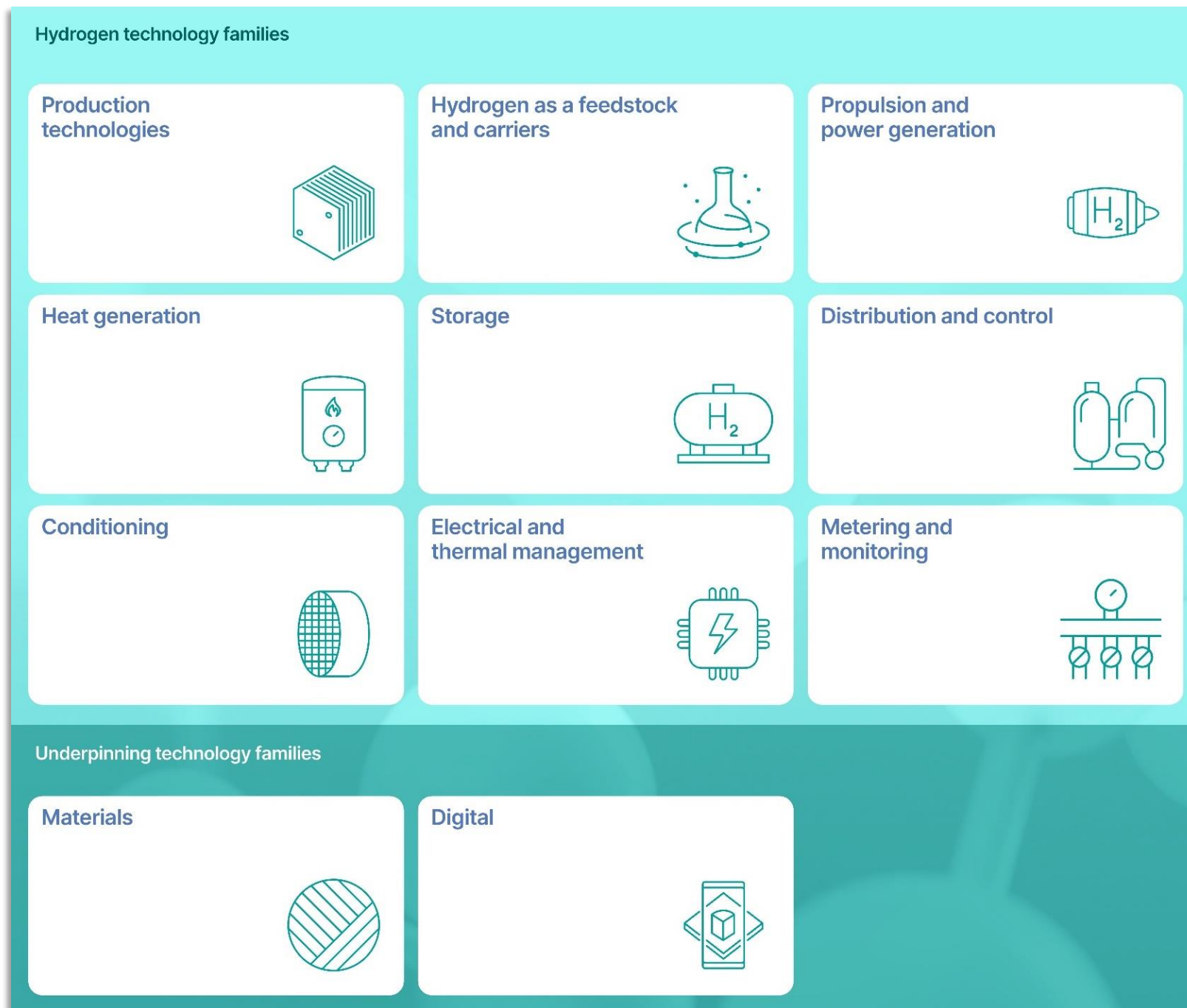
To secure our position as market maker



# The UK Hydrogen Innovation Opportunity and supporting reports



# The UK Hydrogen Innovation Opportunity – Hydrogen technology roadmaps



## x9 technology roadmaps

### Propulsion and power generation

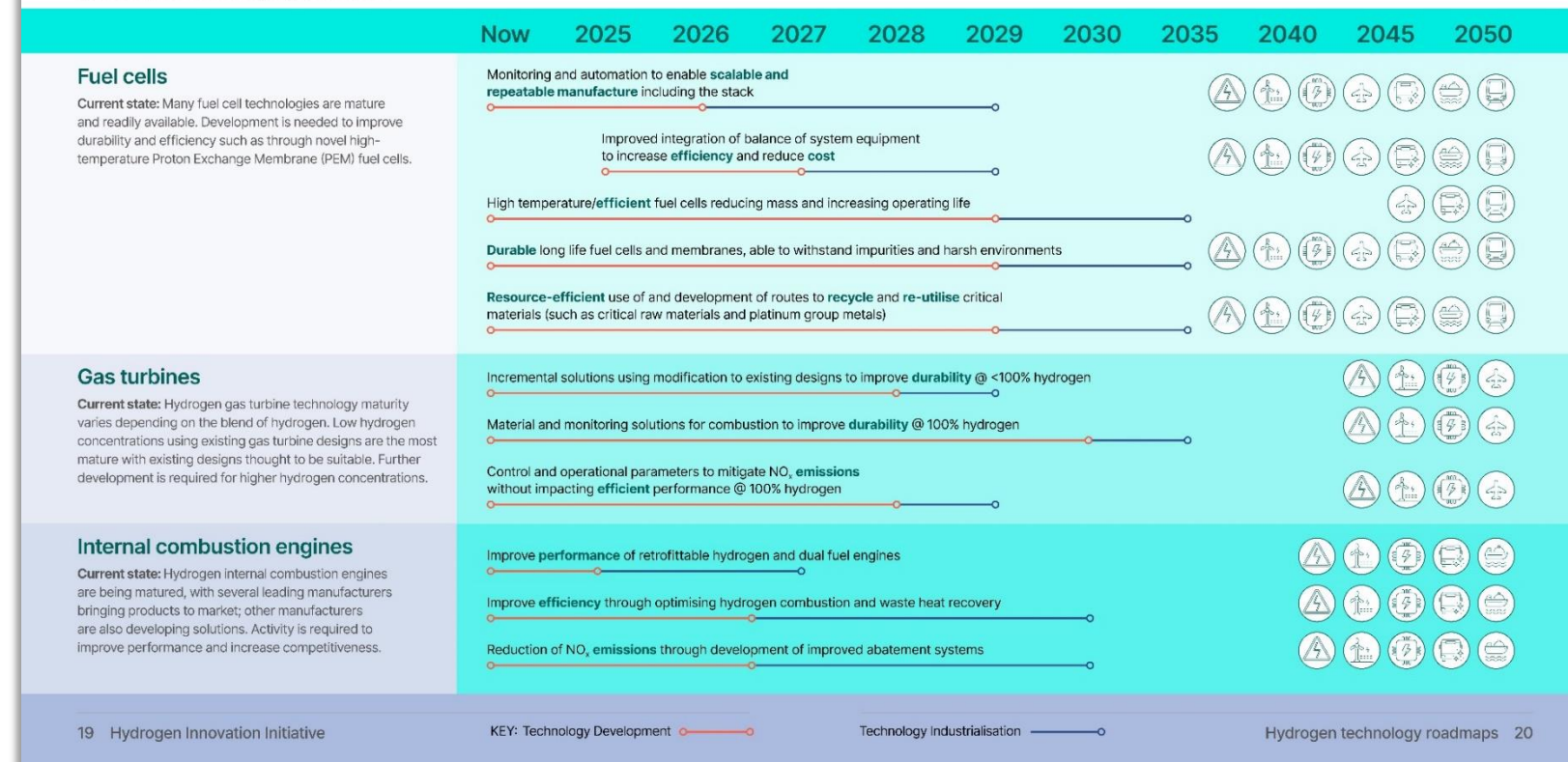
**Summary:** Three propulsion technologies will see natural deployment into key sectors. Fuel cells and internal combustion engines are typically suited to medium to high-duty demands with long-range requirements and where refuelling can be centralised at key hubs, such as Heavy Good Vehicles (HGVs), and coaches. This is reliant on the availability of refuelling infrastructure and the technology becoming cost competitive with battery electric vehicles. Fuel cells could also see migration into more demanding applications, such as short-range flight, but require a

step change in technology to improve performance and reliability. Direct combustion of hydrogen is seen as a natural transition for internal combustion engines, with the key advantage being minimal change to the existing technology and supply chains. Direct combustion of hydrogen through turbines is seen as a possible method to decarbonise higher power applications, such as power generation or short-medium haul flights. Hydrogen combustion processes need to be managed to minimise other emissions such as NO<sub>x</sub>.

#### Global and UK market forecasts

These tables show forecasts for the annual global and UK market for this technology family. The figures show the neutral (midpoint) scenario from analysis for HII by Markets and Markets [1].

2030		2050	
UK	Global	UK	Global
\$0.12bn	\$8bn	\$5.25bn	£150bn



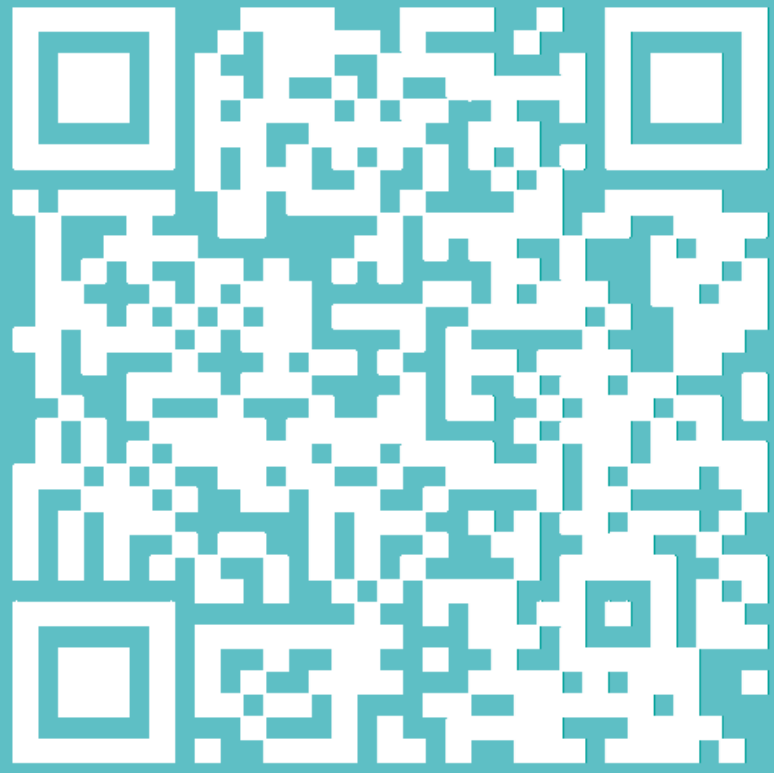
# The UK Hydrogen Innovation Opportunity – UK capabilities



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**The routes to success are now clear but the window of opportunity is fast reducing.**

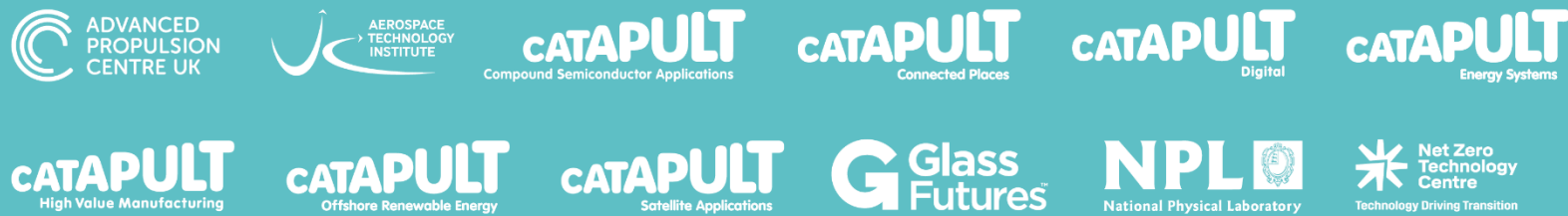
**Now is the time to unlock the UK hydrogen innovation opportunity.**



# Download the UK Hydrogen Innovation Opportunity now

[hydrogeninnovation.co.uk](https://hydrogeninnovation.co.uk)

## HII partners



# Hydrogen Innovation Showcase

## 2-3 July 2024

Pendulum Hotel in Manchester

### Day 1:

Innovation pitch session, facilitated networking and drinks

### Day 2:

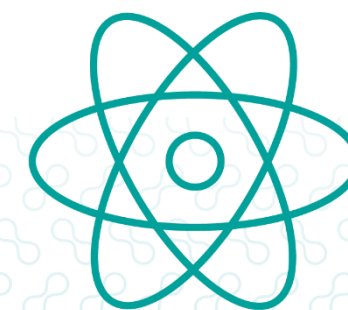
Keynote presentations from industry leaders,  
Parallel sessions focused on making, moving and using  
hydrogen

And more to be announced



## Event focus

The Hydrogen Innovation Initiative, Innovate UK and the EPSRC Hydrogen Hubs, UK-HyRES and HI-ACT, have come together to host the Hydrogen Innovation Showcase. This event will highlight the innovative projects taking place across the UK hydrogen value chain, featuring key players in the hydrogen landscape.



Hosted by:



Innovate UK  
and EPSRC



Hydrogen  
Innovation  
Initiative

# HI-ACT

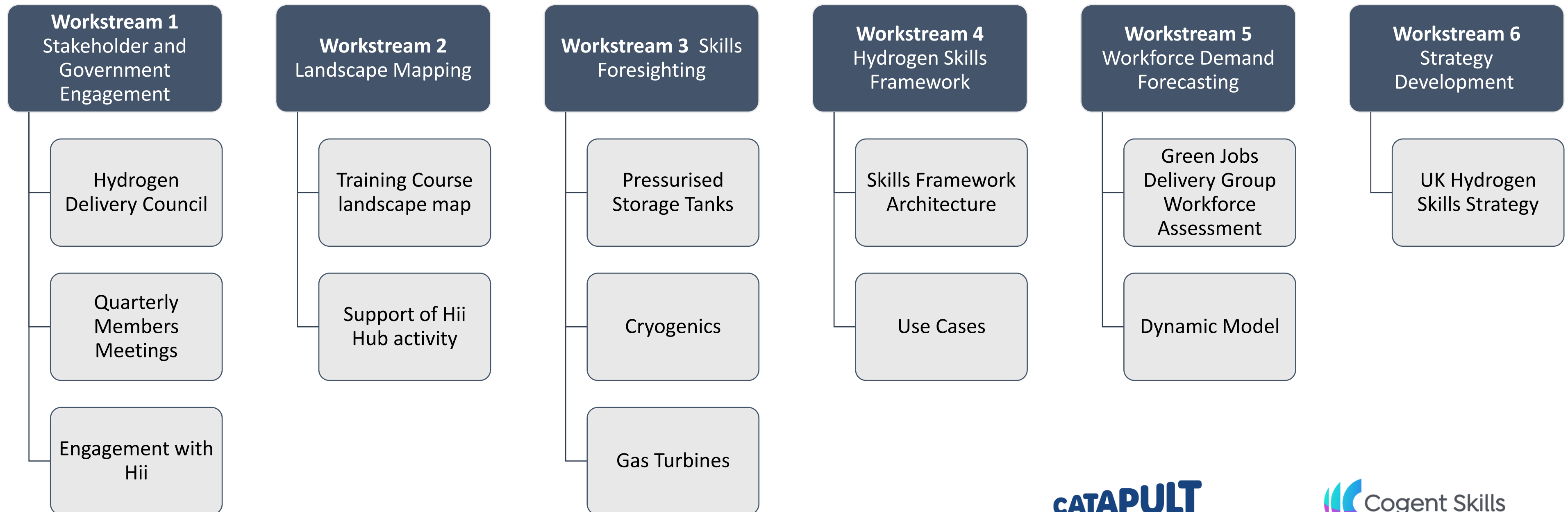
Hydrogen Integration for  
Accelerated Energy Transitions



UK Hub for Research Challenges in  
Hydrogen and Alternative Liquid Fuels

# Hydrogen Skills Alliance

The Hydrogen Skills Alliance identifies and addresses the skills challenges involved in meeting the UK's Net Zero target.





# Get in touch:

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## HII partners

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